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Testing of NGI Machine Shoes

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TESTING OF NGI MACHINESHOES
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TESTING OF NGI MACHINESHOES

In April 1995 the Structural Laboratory, Department of Building Technology and Structural Engineering, Aalborg University, has tested 4 machineshoes for NGI, Virkelyst 5, DK 9400 Nørresundby, as described in the following.

1. Test specimens and test setup

The 4 test specimens were delivered by NGI and were named

M125-24-150-A

M125-24-150-B

M125-30-150-A

M125-30-150-B

The specimens were tested in central compression in the standard testing machine Mohr & Federhaff in force control. The applied force was measured by means of the built-in force transducer in the testing machine. The load range for the testing machine is variable.

The displacement in the load direction was measured by 2 inductive displacement transducers manufactured by HBM. The type for the displacement transducers was W5TK. The mean value from the displacement transducers was used to compensate for possible unequal deformation.

Automatic data acquisition was used. The data acquisition system was HBM, DMC9012A with 3 channels: 1 for the applied force and 2 for the displacement transducers. The DMC9012A uses simultaneous data acquisition for the 3 channels. The sampling frequency was set to 5Hz and the measuring time for each channel was 1/2400 second.

Figure 1 shows a part of the testing machine with the machineshoe and the 2 displacement transducers. Figure 2 shows also the data acquisition system.

2. Testing

The machineshoes were loaded from zero and up to a displacement of approximately 8 - 9 mm. At that time the machineshoes were so deformed that they were not suitable for normal use. The time from zero to failure varied a little from test to test and was approximately 2 minutes.

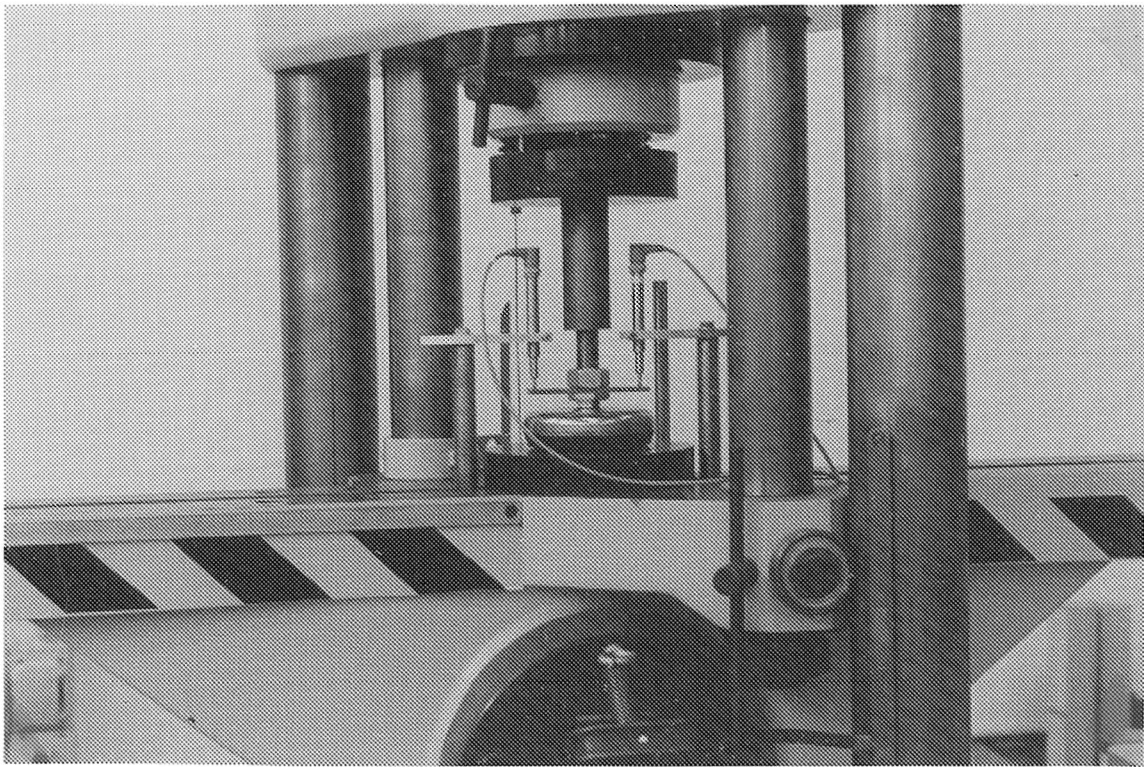


Figure 1 **Machineshoe in testing machine**

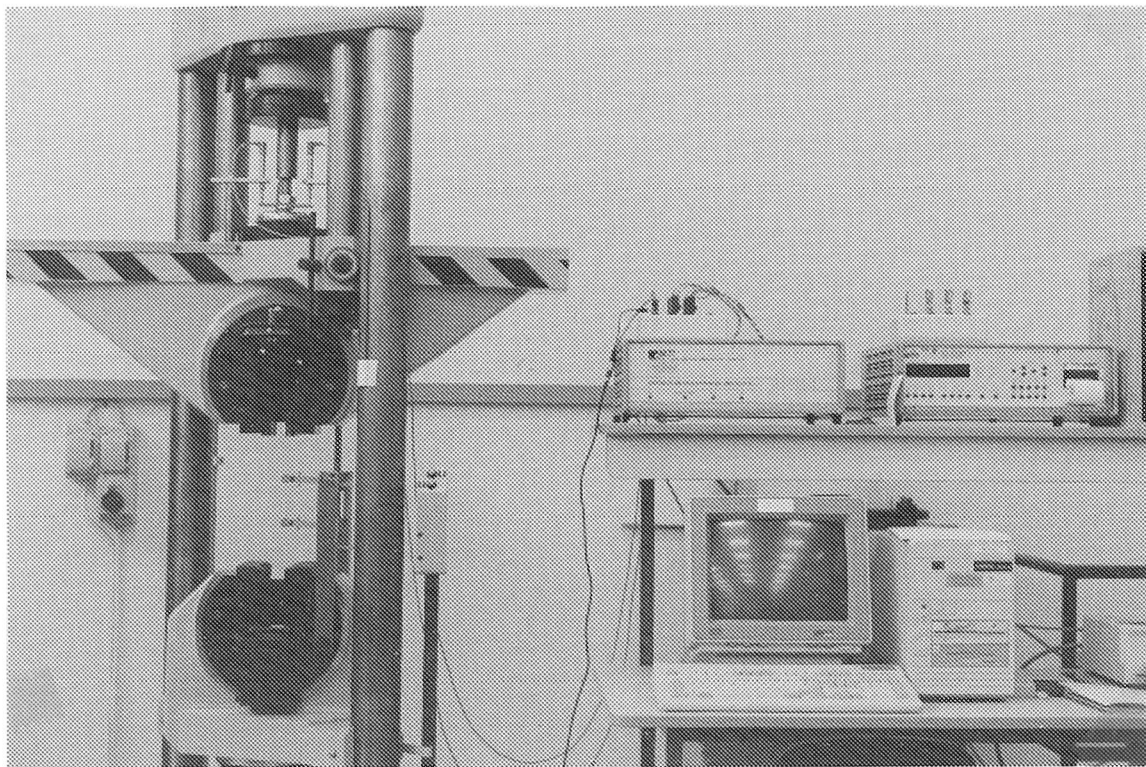


Figure 2 **Machineshoe in testing machine and data acquisition system**

3. Results

The load - displacement curves for the 4 tests are shown in figure 3,4,5 and 6.

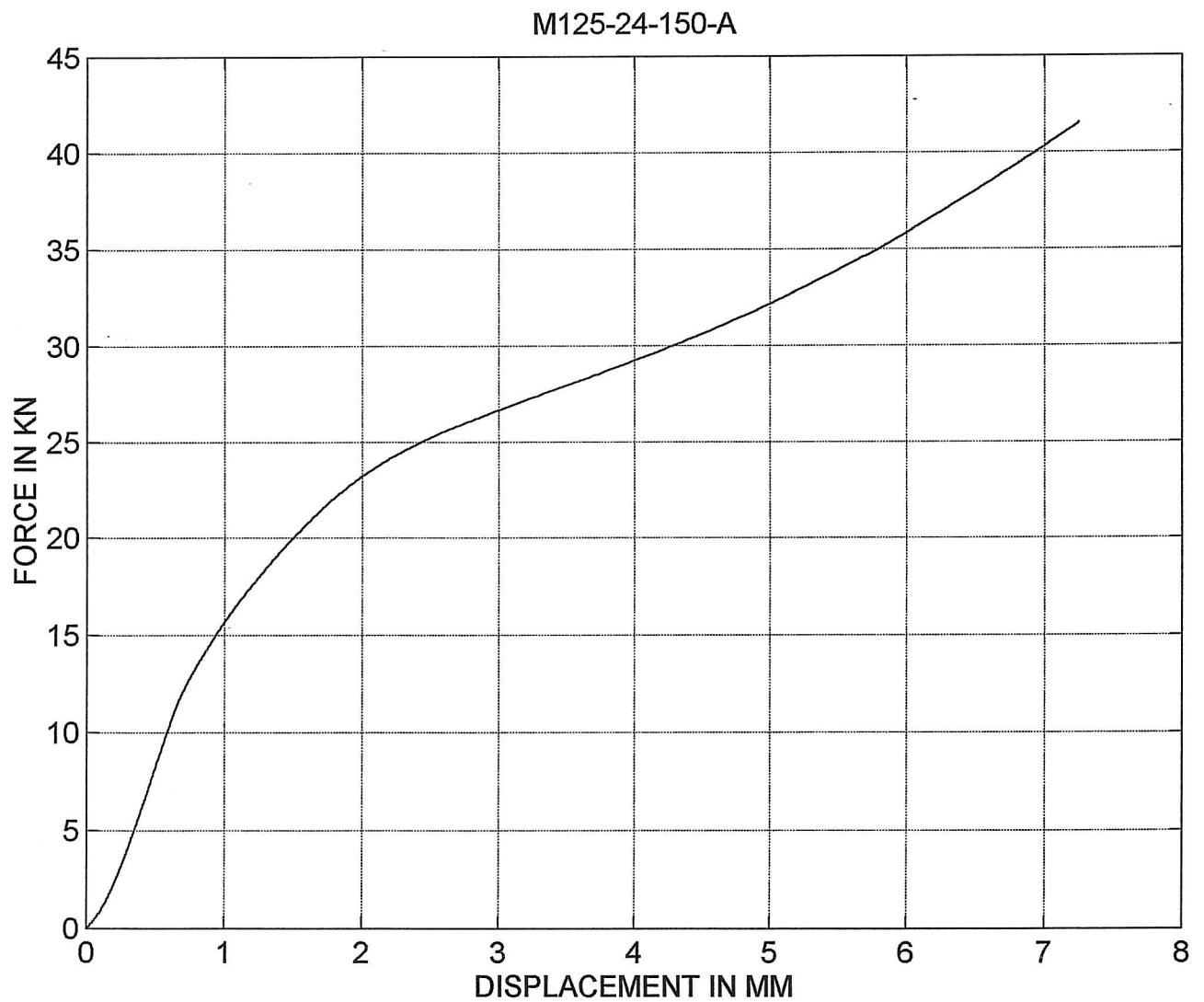


Figure 3 **Load - displacement curve for NGI machineshoe M125-24-150-A**

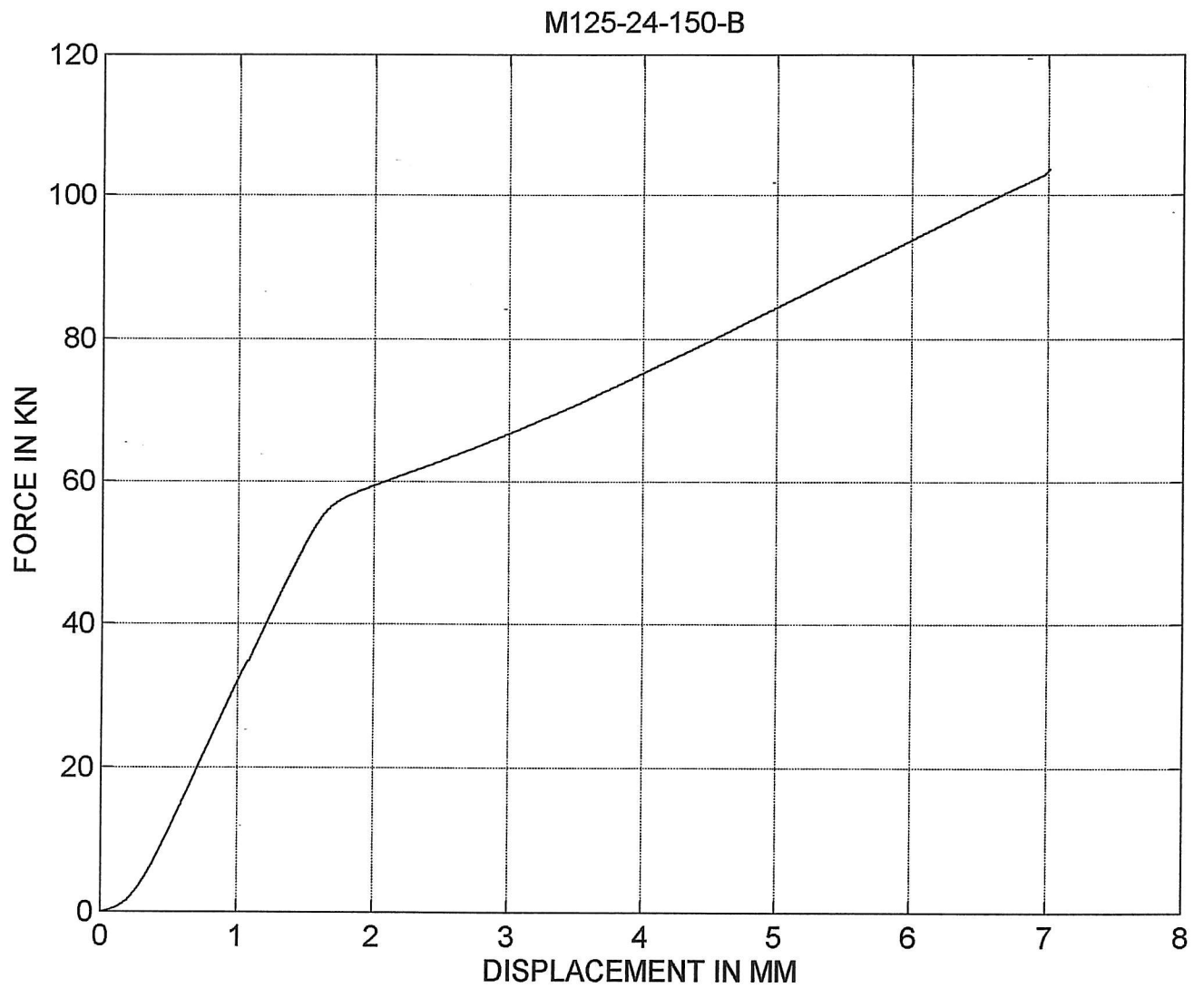


Figure 4 **Load - displacement curve for NGI machineshoe M125-24-150-B**

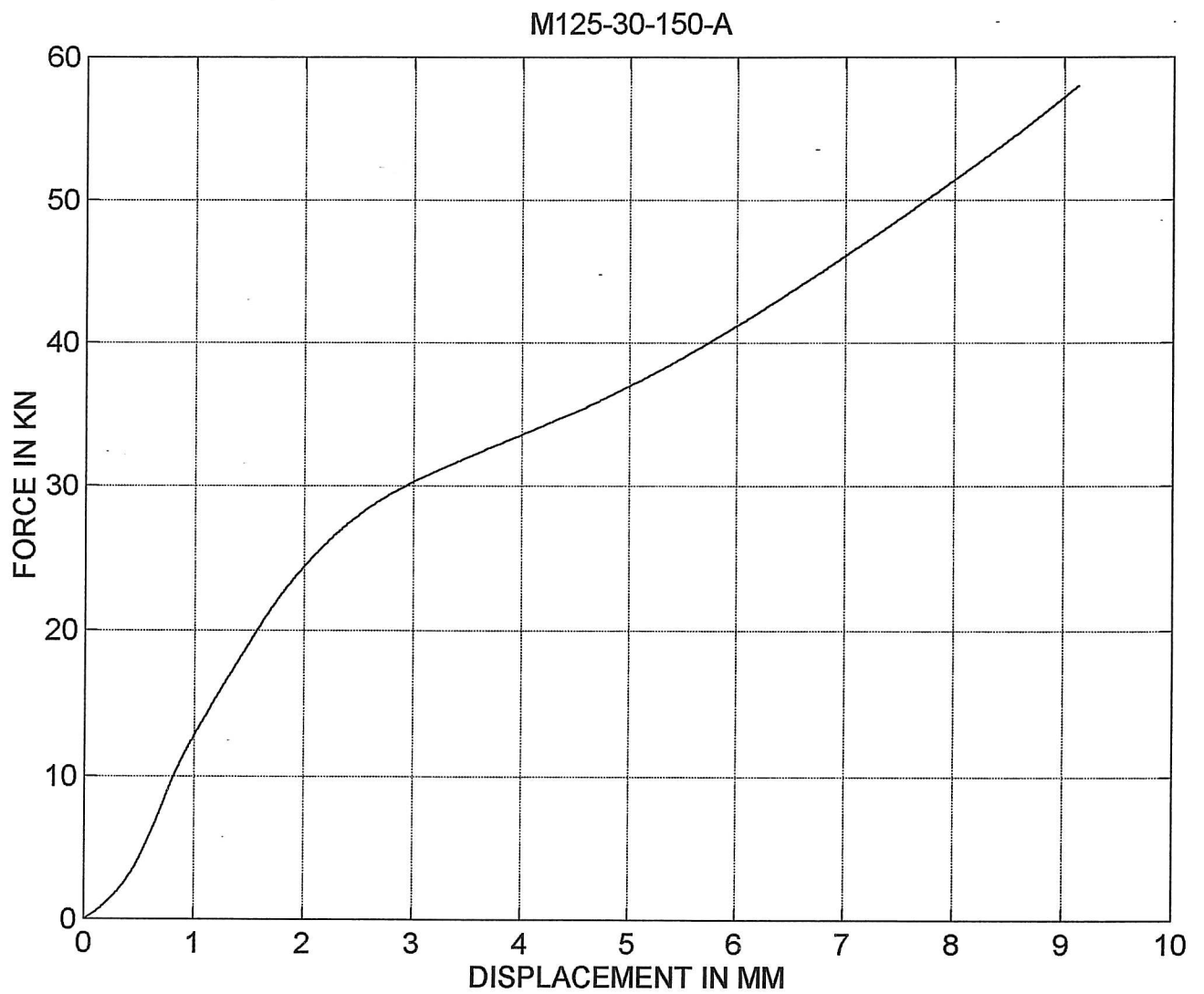


Figure 5 **Load - displacement curve for NGI machineshoe M125-30-150-A**

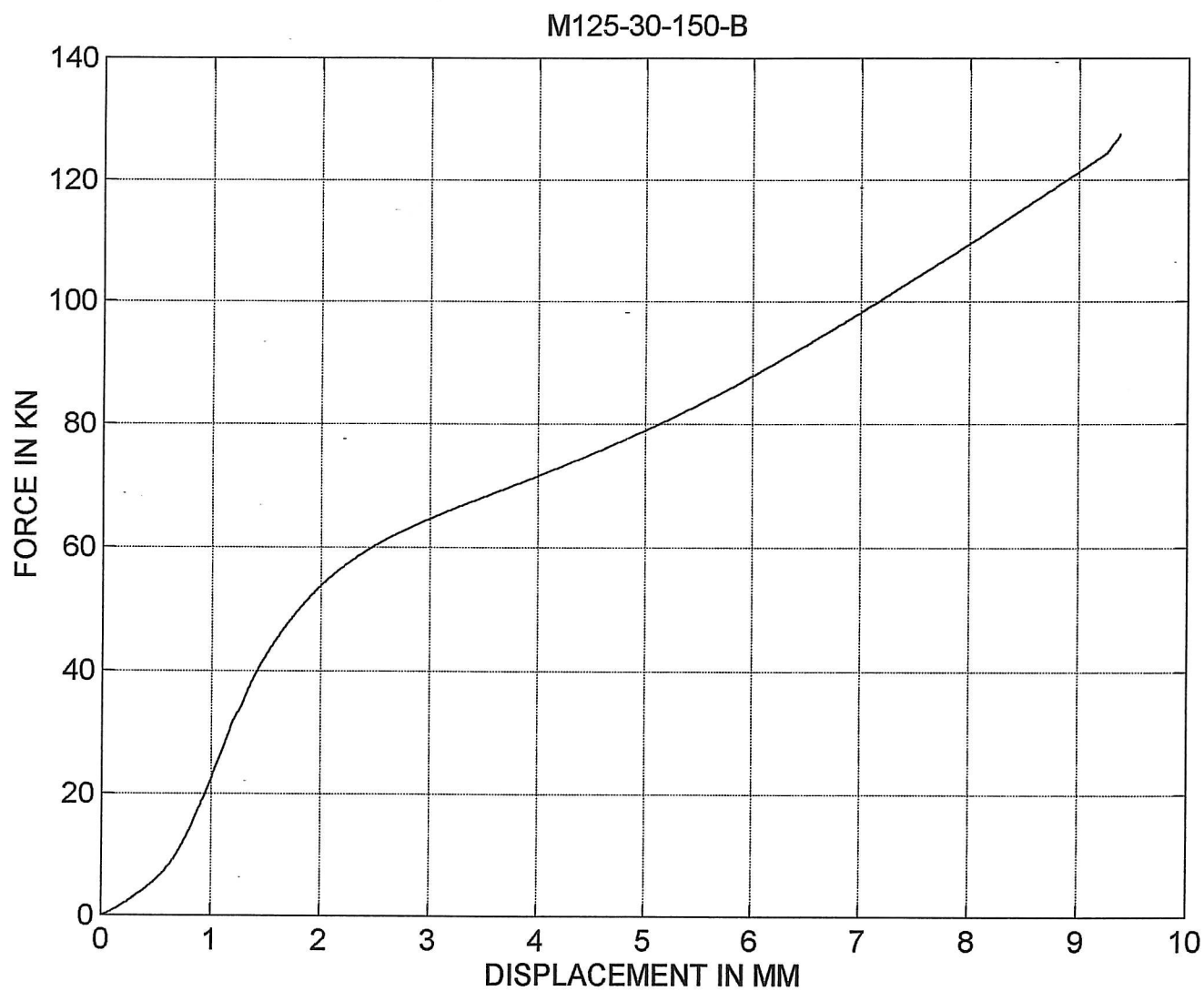


Figure 6 **Load - displacement curve for NGI machineshoe M125-30-150-B**